The only Perfectly Reliable Automatic Boiler Cleaner.
It is Simplicity Itself.
Any Engineer or Steam Fitter can Apply Them.

THE SIMS
Automatic Boiler Cleaner.

[PATENTED JULY 6TH, 1886.]

Fig. 1.

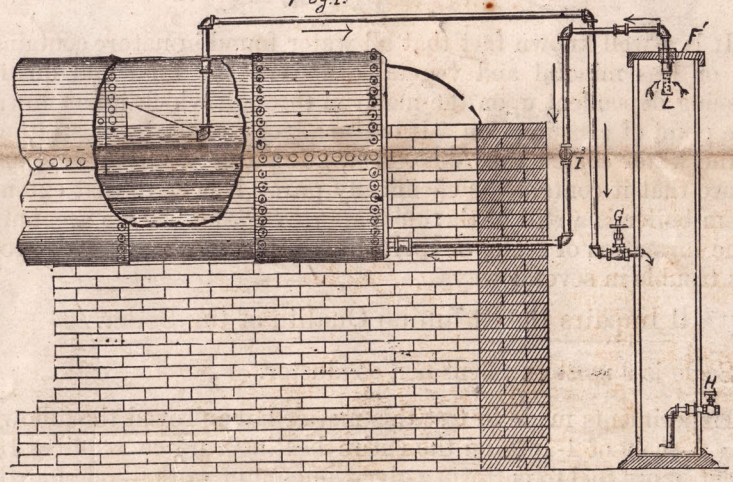
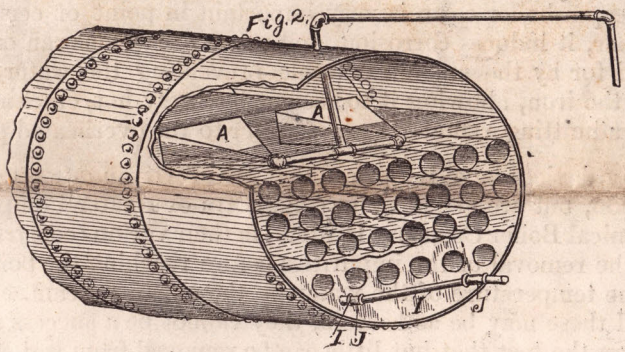


Fig. 2.



WE WARRANT IT

1st. To Remove all Impurities from Any Kind of Water.
2d. To Keep a Boiler Perfectly Clean.
3d. To Out-Last any Boiler to which it may be Applied.

No More Injurious Boiler Compounds Required.
No More Foaming of Boilers.
No More Boiler Cleaning after the Scale is once Removed.
No More Risk of Explosion from Having Dirty Boilers.

We will supply any Reliable Party with our Cleaner on the only Correct Plan, viz: "No Cure, No Pay."

Size No. 1.—For Boiler 40 Horse Power and under, F. O. B.,.....$ 50.
Size No. 2.—For Boiler 40 to 75 Horse Power,..... 75.
Size No. 3.—For Boiler 75 Horse Power and upwards,..... 100.

To Steam Users.

We desire to briefly present our claims to your attention as plainly and concisely as possible.

Incrustation.

It is a well known fact that all water found in nature contains more or less mineral and vegetable matter, the kind and quantity being dependent upon the material through which it has flown to the point of consumption. It is also a fact easy of demonstration that the water condensed from steam, no matter what the impurities are that it contains, is chemically pure; hence, to that extent a steam boiler is a still of the most approved kind. This accounts for the formation of scale, or incrustation in the boiler. This produces trouble in several ways.

It Impairs the Steaming Quality of the Boiler.

Scale is a most excellent non-conductor.

Experiments made to test this matter have proved the following: A scale of 1-16th on the entire heating surface requires 13 per cent. more fuel to perform a given amount of work,—one-fourth 38 per cent., one-half 60 per cent., etc. It will be seen at a glance that to keep a boiler clean is very important in point of economy. But further, it induces corrosion, and many explosions can only be accounted for by the amount of scale preventing the water from reaching the iron, allowing it to become intensely hot, cracking the scale and admitting a sudden rush of water to the overheated plates.

Many devices have been provided for preventing or removing incrustation, but are generally in some form of Heater-Compound, or Mechanical Boiler Cleaner. Heaters, in their various construction propose the removal of the impurities before reaching the boiler by raising the temperature of the water by the exhaust steam. However good these may be as heaters, they cannot be a success as purifiers from the fact that but little can be removed from water at as low a temperature as the best of them can raise the feed water to

BOILER COMPOUNDS.

These have become as plenty as patent medicines and about as mischievous. It is not possible for any compound to remove the impurities from all kinds of water, for what may be a solvent for one, will not be for another which may be entirely different in its nature. With the most favorable condition a compound can only hold

the impurities in solution for a limited time possessing no means of removing it, while doubtless the most of them are positive injury, attacking the iron more than the scale, besides being a constant expense.

THE SIMS AUTOMATIC BOILER CLEANER

works on the well known law, that all impurities held in suspension become separated and rise to the surface at a high temperature, this matter floating until it becomes dense, and gravitating towards the bottom enters into the circulation of the water, and adheres to the iron for which it has an affinity.

As will be seen by figure 2, funnel shaped skimmers are placed with their openings towards the front and sufficient in number to nearly cover the surface of the water; into these, the circulation of the water in the boiler carries the floating impurities which are completely removed by the current which is constantly flowing through the pipe to which they are connected; this circulation being produced by the exposure of pipe I, figure 2, to the heat of the rear arch, the same as a water back in a cook stove.

Figure I shows the Cleaner complete. The impurities removed from the surface of water in boiler follows the direction of the arrows, flowing into settling pipe at G. From this point downwards the water being at rest, is much cooler than in the boiler which induces precipitation. If, however, any particles escape this point before they can return to the boiler, they must rise through a perpendicular column of water and pass through a strainer L, which insures a complete settling of all the particles.

This, it will be seen, is in harmony with natural law. The heat separates and causes the impurities to float, the circulation of water in the boiler carries it into the skimmers, where it is passed by a constant flow into the pipe, which affords the most ample provisions for settling and blowing out, without the waste of heat or water, other than the mud which is blown out once or twice a day at valve H. The results are, as soon as the formation of scale is stopped, that which is already on, falls off by the contraction and expansion of the iron, and will be found loose in the boiler. When attached to a new boiler it will keep it clean without any further attention than that given to cleaner.

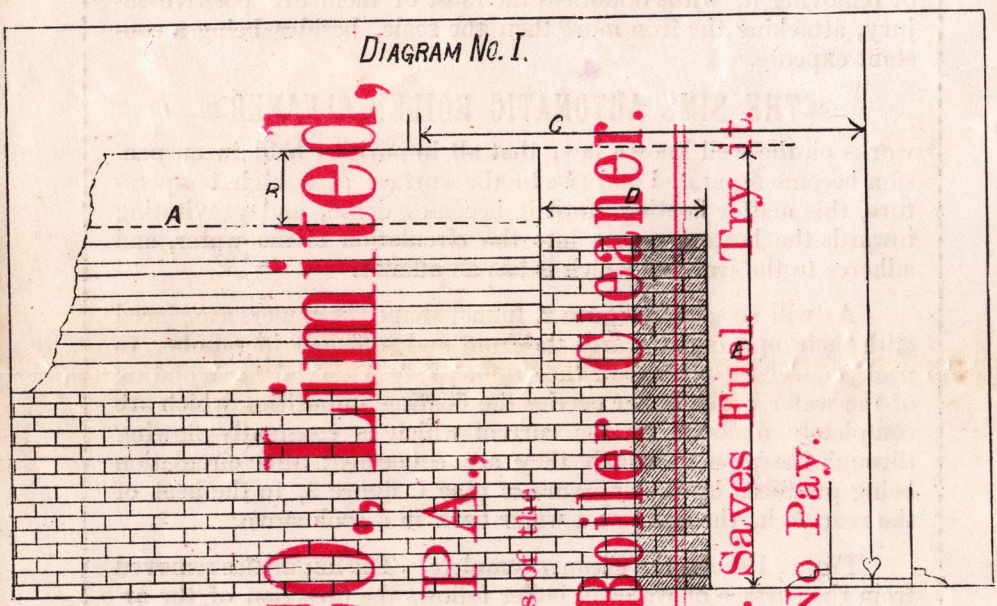
In many places, the filling out of one of the diagrams will enenable us to cut all pipes, and ship ready to be attached. Where this cannot be done, we send 18 feet of pipe and fittings with each cleaner.

Any person infringing these patents will be prosecuted to the full extent of the law.

Diagram No. 1 represents Settling Pipe at the end of Boiler. Dotted Lines represent Low Water Line. Fill out carefully—dropping a plumb line for center of Settling Pipe. Pipe connecting Skimmers should be as near rear of Boiler as stay braces will admit.

Diameter of Boiler,..... ..... *Length of Boiler,*.....

DIAGRAM No. I.



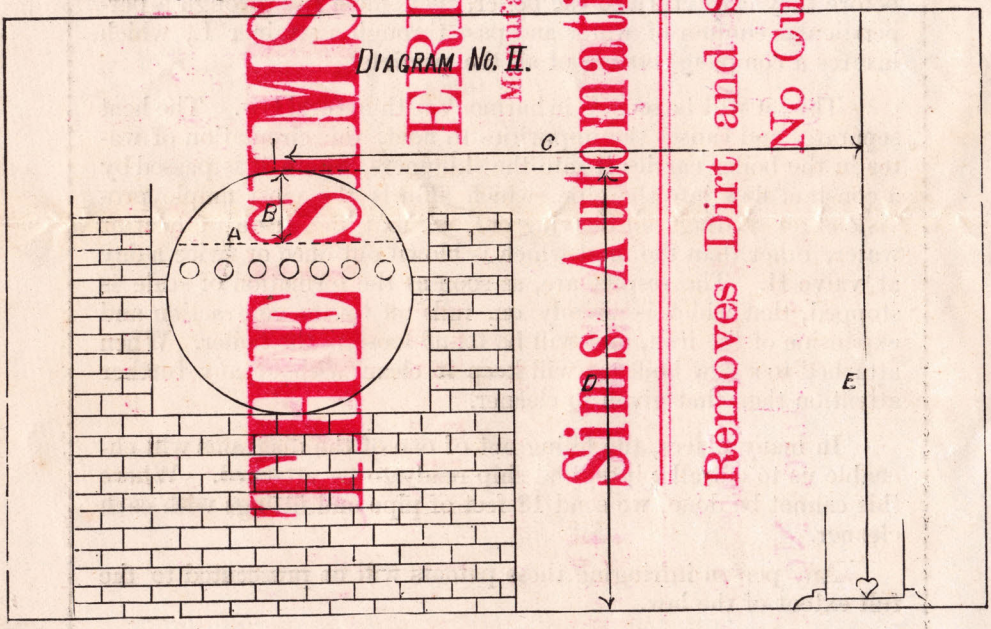
[Place Settling Pipe as near arch as convenient.]

Diagram No. 2 represents Setting Settling Pipe at the side of Boiler.

Diameter of Boiler,..... *Length of Boiler,*.....

Distance of Pipe connecting Skimmers from rear end of Boiler,.....

DIAGRAM No. II.



[Place Settling Pipe as near arch as convenient.]

THE SIMS CO., Limited,
ERIE, PA.,
Manufacturers of the
Sims Automatic Boiler Cleaner.
Removes Dirt and Scale. Saves Fuel. Try it.
No Cure, No Pay.